plant hemoglobin is barley nonsymbiotic hemoglobin.

30. The method according to claim 28 wherein the improved agronomic properties include germination.

31. The method according to claim 28 wherein the improved agronomic properties include seedling vigour.

32. The method according to claim 28 wherein the improved agronomic properties include reduced cellular levels of fermentation products.

33. The method according to claim 28 wherein the improved agronomic properties include increased oxygen uptake.

34. The method according to claim 28 wherein the improved agronomic properties include increased tolerance to hypoxic conditions.

35. A method of selecting seeds for breeding to produce seed lines having desirable characteristics comprising:

providing a representative seed of a given seed line;

growing the seed such that the seed germinates;

isolating an extract from the seed;

measuring levels of nonsymbiotic plant hemoglobin expression within the extract; and

selecting or rejecting the seed for further breeding based on the hemoglobin levels.

36. The method according to claim 35 wherein the nonsymbiotic plant hemoglobin is barley nonsymbiotic hemoglobin.

37. A method of determining if a seed is germinating comprising:

providing a seed suspected of germinating;

isolating an extract from the seed; and

measuring levels of nonsymbiotic plant hemoglobin expression within the extract,

wherein high levels of nonsymbiotic plant hemoglobin expression indicate that the seed is germinating.